Applicant(s):	Michael L. Lamb	Examiner	Usmaan Saeed
Serial No.	10/739,228	Group Art Unit	2166
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TITLE	COMMON INFORMATION MODEL UTILITIES		

CERTIFICATE UNDER 37 CFR 1.8:
I hereby certify that this correspondence is being transmitted via the email to Examiner Usmaan Saeed
of the U.S. Patent and Trademark Office on December 5, 2009.

/David Victor/
David W. Victor

PROPOSED AMENDMENT

Applicants submit these proposed amendments at the request of the Examiner. The
Examiner said he would allow the case if the requirements of claims 36, 42, and 49 are added to
base claims 37, 38, and 44 and if the definition of acronyms used in the claims are provided.
Applicants amend the claims as requested by the Examiner to place the application in condition
for allowance.

In adding the requirements of claims 36, 42, and 49 to the base claims, Applicants
clarified the first instance of the single inquiry as a "first single inquiry" and a "second single
inquiry" as including the unique ID of a component storage entity. These amendments to the
base claim are also disclosed in at least para. 92 of the Published Specification (U.S. Patent Pub.
No. 2005/0138040). Claim 27 is amended to add the definition of the acronym SMI as "Storage
Management Initiative" and change the acronym to "SMI-S" as disclosed in at least para. 5 of
the Published Specification. Claims 29 and 47 are amended to add the definition of the acronym
of SRM as "Storage Resource Manager" as disclosed in at least para. 6 of the Published
Specification. Claims 37, 38, and 44 are amended to add the definition of the acronym CIM as
"Common Information Model" as disclosed in at least para 5 of the Published Specification, add
the definition of the acronym API as "Application Programming Interface" as disclosed in at
least para. 7 of the Published Specification, and add the definition of the acronym CIMOM as
"CIM Object Manager" as disclosed in at least para 6 of the Published Specification.

Applicants amend claim 41 to clarify the inquiry as the "first single inquiry"

Claims 35, 36, 42, 43, and 47 are canceled.

Claims 46-48 are amended to clarify the antecedent basis of the top level storage entity.

Applicants authorize the Examiner to enter these proposed amendments to place the Application in condition for allowance. Should any additional fees be required, such as fees under 37 CFR §§1.16 and 1.17, please charge Deposit Account No. 09-0460.

The proposed amendments to the claims are reflected in the listing of claims which begins on page 3.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-23.   (Canceled)

24.   (Previously Presented) The method of claim 37, wherein the plurality of storage entity objects include at least one of a disk array system, storage pool, volume, host system, Fibre Channel; Port, and disk.

25.   (Previously Presented) The method of claim 24, wherein the top level storage entity comprises the disk array system, and wherein each object other than the disk array system is associated as a component of the disk array system object or a subcomponent of one of the components of the disk array system object.

26.   (Canceled)

27.   (Currently Amended) The method of claim 37, wherein the creating operation comprises creating a plurality of storage objects, and wherein the storage objects have associations to each other that are consistent with corresponding storage entities' relationships modeled in a Storage Management Initiative Specification (SMI-S/Bluefin) profile.

28.   (Canceled)

29.   (Currently Amended) The method of claim 37, wherein the inquiry is received from a Storage Resource Manager (SRM) CIM Client Application.

30.   (Canceled)

31.   (Previously Presented) The method of claim 37, wherein the inquiry includes the unique ID for a disk array, wherein the components and subcomponents for which information is

obtained comprise storage pools and disks, and wherein the relationships indicate a relationship of storage pools to the disk array system and of the disks to the storage pools.

32-36. (Canceled)

37.   (Currently Amended) A computer implemented method for responding to an inquiry, comprising the following operations:

receiving a <u>first</u> single inquiry from a <u>Common Information Model (CIM)</u> client application including a unique ID of a top level storage entity, wherein the top level storage entity identified by the unique ID includes components associated as a component of the top level storage entity and a subcomponent of at least one component;

using CIM client <u>Application Programming Interfaces (</u>APIs<u>)</u> in response to the <u>first</u> single inquiry to obtain information from a <u>CIM Object Manager (CIMOM)</u> using the unique ID of the top level storage entity to obtain information on components and subcomponents of the top level storage entity from multiple CIM objects on the top level storage entity and components and subcomponents of the top level storage entity in the CIMOM;

creating a plurality of storage objects in a computer readable storage medium including information on the top level storage entity and components and subcomponents, and parent-child relationships among the top level storage entity and the components and subcomponents of the top level storage entity;

populating the created storage objects with information received from the CIMOM including identifying the entities in the top level storage entity and the parent child relationships of the top level storage entity, components and subcomponents, and wherein properties of each storage object map directly to properties of at least one CIM class used to represent the top level storage entity and components and subcomponents of the top level storage entity in the CIMOM; [[and]]

returning information on the storage objects to the CIM client application that sent the <u>first single</u> inquiry<u>; and</u>

<u>receiving a second single inquiry including the unique ID of a component storage entity, wherein the receiving, obtaining, creating, populating, and sending operations are repeated to</u>

obtain information concerning the component storage entity and the component storage entity's relationships to other components.

38.   (Currently Amended) A system in communication with a Common Information Model Object Manager (CIMOM) for responding to an inquiry from a host, comprising:

a processor; and

a computer readable storage medium having code executed by the processor to perform operations, the operations comprising:

receiving a first single inquiry from a Common Information Model (CIM) client application including a unique ID of a top level storage entity, wherein the top level storage entity identified by the unique ID includes components associated as a component of the top level storage entity and a subcomponent of at least one component;

using CIM client Application Programming Interfaces (APIs) in response to the first single inquiry to obtain information from a CIMOM using the unique ID of the top level storage entity to obtain information on components and subcomponents of the top level storage entity from multiple CIM objects on the top level storage entity and components and subcomponents of the top level storage entity in the CIMOM;

creating a plurality of storage objects in a computer readable storage medium including information on the top level storage entity and components and subcomponents, and parent-child relationships among the top level storage entity and the components and subcomponents of the top level storage entity;

populating the created storage objects with information received from the CIMOM including identifying the entities in the top level storage entity and the parent child relationships of the top level storage entity, components and subcomponents, and wherein properties of each storage object map directly to properties of at least one CIM class used to represent the top level storage entity and components and subcomponents of the top level storage entity in the CIMOM; and

returning information on the storage objects to the CIM client application that sent the first single inquiry; and

receiving a second single inquiry including the unique ID of a component storage entity, wherein the receiving, obtaining, creating, populating, and sending operations are

repeated to obtain information concerning the component storage entity and the
component storage entity's relationships to other components.

39.   (Previously Presented) The system of claim 38, wherein the plurality of storage
entity objects include at least one of a disk array system, storage pool, volume, host system,
Fibre Channel; Port, and disk.

40.   (Previously Presented) The system of claim 39, wherein the a top level storage
entity comprises the disk array system, and wherein each object other than the disk array system
is associated as a component of the disk array system object or a subcomponent of one of the
components of the disk array system object.

41.   (Currently Amended) The system of claim 38, wherein the first single inquiry is
received from a SRM CIM Client Application.

42.   (Canceled)

43.   (Canceled)

44.   (Currently Amended) A computer readable storage medium include code
executed to communicate with a Common Information Model Object Manager (CIMOM) to
respond to an inquiry from a host and to perform operations, the operations comprising:

        receiving a single inquiry from a Common Information Model (CIM) client application
including a unique ID of a top level storage entity, wherein the top level storage entity identified
by the unique ID includes components associated as a component of the top level storage entity
and a subcomponent of at least one component;

        using CIM client Application Programming Interfaces (APIs) in response to the single
inquiry to obtain information from a CIMOM using the unique ID of the top level storage entity
to obtain information on components and subcomponents of the top level storage entity from
multiple CIM objects on the top level storage entity and components and subcomponents of the
top level storage entity in the CIMOM;

creating a plurality of storage objects in a computer readable storage medium including information on the top level storage entity and components and subcomponents, and parent-child relationships among the top level storage entity and the components and subcomponents of the top level storage entity;

populating the created storage objects with information received from the CIMOM including identifying the entities in the top level storage entity and the parent child relationships of the top level storage entity, components and subcomponents, and wherein properties of each storage object map directly to properties of at least one CIM class used to represent the top level storage entity and components and subcomponents of the top level storage entity in the CIMOM; [[and]]

returning information on the storage objects to the CIM client application that sent the first single inquiry; and

receiving a second single inquiry including the unique ID of a component storage entity, wherein the receiving, obtaining, creating, populating, and sending operations are repeated to obtain information concerning the component storage entity and the component storage entity's relationships to other components.

45.   (Previously Presented) The computer readable storage medium of claim 44, wherein the plurality of storage entity objects include at least one of a disk array system, storage pool, volume, host system, Fibre Channel; Port, and disk.

46.   (Currently Amended) The computer readable storage medium of claim 45, wherein the [[a]] top level storage entity comprises the disk array system, and wherein each object other than the disk array system is associated as a component of the disk array system object or a subcomponent of one of the components of the disk array system object.

47.   (Currently Amended) The computer readable storage medium of claim 44, wherein the first single inquiry is received from a Storage Resource Manager (SRM) CIM Client Application.

48.   (Previously Presented) The computer readable storage medium of claim 44, wherein the <u>first single</u> inquiry includes the unique ID for a disk array, wherein the components and subcomponents for which information is obtained comprise storage pools and disks, and wherein the relationships indicate a relationship of storage pools to the disk array system and of the disks to the storage pools.

49.   (Canceled)

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